reference in its entirety, be used. PCBs **26** and **28** communicate by means of conductive traces on the back of flexible LCD **24**. The conductive traces terminate in peripheral contact regions **58** and **60** of the LCD screen which are folded over the edges of the PCB's to form connections with contact pads on the PCBs.

Adjacent scan head **30** there is located a motor **32** which drives roller **34** via reduction gearing. A switch **36** is provided to detect depression of eject button **12**. FIG. **6** provides a further exploded view internal cartridge **38** and window **10**.

Power for the electric motor and various circuit modules is conveyed from a battery compartment in the spine of the e-book to PCB **28** by means of cable **29**.

A block diagram of various electronic components of the e-book is shown in FIG. **6**. Power from batteries **40** is conditioned and distributed by power supply circuit **42** to the various circuit modules located on the PCBs. To extend battery life, the processor circuitry is powered down whenever the screen display is constant. Near zero power consumption allows the e-book to appear to always be "on" in the manner of a conventional paper based book.

Processing module **44** includes a central processing unit **46**, which communicates with BIOS memory chip **48** and RAM **50** in the conventional manner. The CPU operates according to a program stored in program memory chip **52**. The processing module receives data and control signals from eject sensor **36**, joystick **26** and scanner **30**. In a further, more complex implementation, LCD screen **24** may be touch sensitive in which case the processing module would also be responsive to command signals generated by a user touching the LCD screen.

In operation a book data card is inserted through card slot **24**. In response card insertion sensor **48** generates a signal alerting processing module **44** to activate electric motor **32** thereby causing roller **34** to draw the card into internal cartridge **38**. As the card is drawn in scan head **30** converts a pattern on the card into corresponding data signals which are decoded by CPU **46** according to an algorithm implemented in the software stored in program memory chip **52**. The resulting decoded text file is stored in RAM **50**.

The decoded signals are displayed as readable text on LCD **24** under control of display controller **44**. Of course, as referred to previously, in magazines and some books, such as childrens' books, technical volumes and manuals, illustrations or graphics may feature prominently. Accordingly, the software stored in program memory chip **52** may also include instructions to decode figures encoded on the book data card.

The processing module **44** is responsive to signals generated by joystick **26** and is programmed to allow a user to move forward or backwards through the displayed text. In particular, processing module **44** retrieves different data segments from RAM **50** in response to movement of the joystick.

Several systems for encoding the data cards are appropriate and have been described in the prior art. For example, in U.S. Pat. No. 6,176,427 there is described a method for coding digital data, such as a text file, into a pattern printable on an A4 or Letter size piece of paper. In the system that is described it is possible to encode slightly more than 1 MB of data on to one side of a printed letter size page of paper using a high resolution printer and a 600 dpi scanner. In the presently described preferred embodiment the scanner head **30** is implemented by means of the scan head technology described in the previously incorporated U.S. patent application Ser. No. 09/113,053 Such a scanner has an output resolution of 4800 dpi.

It is further envisaged that the data card be produced using the very high resolution print heads described in the previously referred to U.S. patent application Ser. No. 09/113,053.

Accordingly the amount of data that may be stored on a data card of dimensions 8.5 cm×5 cm (3.5"×2") is approximately 1 Mb. Encoding of the text on to the data card may be performed as described in U.S. patent application Ser. No. 09/112,781 which is hereby incorporated by reference in its entirety.

Accordingly an entire novel may be stored on a single credit card sized plastic card by means of a pattern formed as an array of 16 million printed ink dots. The manufacturing cost per card is less than 1 cent, or about one fiftieth the cost of manufacturing a floppy disk. While it is envisaged that the card be made of plastic it would also be possible to use other substrates such as paper.

While it is primarily envisaged that the data stored on the data card will correspond to the text of a book or magazine, it is also possible to encode an executable program file. Accordingly updates to the software program stored in program memory **43** may be conveniently distributed in the form of encoded data cards.

The mechanical arrangement of the e-book will now be described further with reference to FIG. **7** where it will be noted that front door **6** and rear door **8** are independently pivoted about hinges **50** and **52**. Power cable **29** is deliberately left slack to accommodate movement of the front door **6** during closure of the book. It will be noted that the spine **16** and outer surfaces of the front and rear doors are configured so that upon fully opening the e-book the flexible LCD screen is drawn taught and flat for convenient viewing.

A further cross sectional view of the e-book, with doors **6** and **8** brought to a closed position appears in FIG. **8**. It will be noted that in the closed position a mid portion **54** of the flexible LCD screen **24** is able to loop into the spine by virtue of a recess formed in the spine for and front and rear doors for receiving the screen. Consequently creasing and damage of the LCD screen is avoided.

Also visible in FIG. **8** are screen-to-PCB contact areas **58**, **60** which respectively connect the underside of the PCB to the outer edges of each of PCBs **26** and **28**. As previously explained, conductive traces on the underside of the PCB provide a path for the PCBs to exchange power and data signals.

A further cross-sectional view is provided in FIG. **9** through the long axis of spine **16** showing two AAA batteries located in a battery compartment formed in the spine.

As will be realized by those skilled in the art, embodiments of the invention other than the preferred embodiment described in detail herein are possible. Accordingly the following claims are not to be read as limited by the preferred embodiment.

I claim:

1. An electronic book comprising:

a first housing portion;

a second housing portion;

a cylindrical spine interposed between the first and second housing portions and pivotally connecting the first housing portion to the second housing portion;

a flexible display screen fast with inner faces of the first and second housings and spanning the spine;

first and second microprocessor circuitry respectively positioned in the first and second housing portions behind the flexible display screen;

a scan head for scanning a data card, the scan head provided on the first microprocessor circuitry on a surface oppo-